Instruction 106-2877
3-6-09

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Installation Instructions for 2009-Up S&S 495 Camshafts for Victory® Motorcycles

DISCLAIMER:
S&S parts are designed for high performance, closed course, racing applications and are intended for the very experienced rider only. The installation of S&S parts may void or adversely affect your factory warranty. In addition such installation and use may violate certain federal, state, and local laws, rules and ordinances as well as other laws when used on motor vehicles used on public highways, especially in states where pollution laws may apply. Always check federal, state, and local laws before modifying your motorcycle. It is the sole and exclusive responsibility of the user to determine the suitability of the product for his or her use, and the user shall assume all legal, personal injury risk and liability and all other obligations, duties, and risks associated therewith.

The words Victory®, Victory Freedom®, and all Victory part numbers and model designations are used for reference only.

SAFE INSTALLATION AND OPERATION RULES:
Before installing your new S&S part it is your responsibility to read and follow the installation and maintenance procedures in these instructions and follow the basic rules below for your personal safety.

- Gasoline is extremely flammable and explosive under certain conditions and toxic when breathed. Do not smoke. Perform installation in a well ventilated area away from open flames or sparks.
- If motorcycle has been running, wait until engine and exhaust pipes have cooled down to avoid getting burned before performing any installation steps.
- Before performing any installation steps disconnect battery to eliminate potential sparks and inadvertent engagement of starter while working on electrical components.
- Read instructions thoroughly and carefully so all procedures are completely understood before performing any installation steps. Contact S&S with any questions you may have if any steps are unclear or any abnormalities occur during installation or operation of motorcycle with a S&S part on it.
- Consult an appropriate service manual for your motorcycle for correct disassembly and reassembly procedures for any parts that need to be removed to facilitate installation.
- Use good judgment when performing installation and operating motorcycle. Good judgment begins with a clear head. Don't let alcohol, drugs or fatigue impair your judgment. Start installation when you are fresh.
- Be sure all federal, state and local laws are obeyed with the installation.
- For optimum performance and safety and to minimize potential damage to carb or other components, use all mounting hardware that is provided and follow all installation instructions.
- Motorcycle exhaust fumes are toxic and poisonous and must not be breathed. Run motorcycle in a well ventilated area where fumes can dissipate.

IMPORTANT NOTICE:
Statements in this instruction sheet preceded by the following words are of special significance.

⚠ WARNING

Means there is the possibility of injury to yourself or others.

⚠ CAUTION

Means there is the possibility of damage to the part or motorcycle.

NOTE

Other information of particular importance has been placed in italic type.

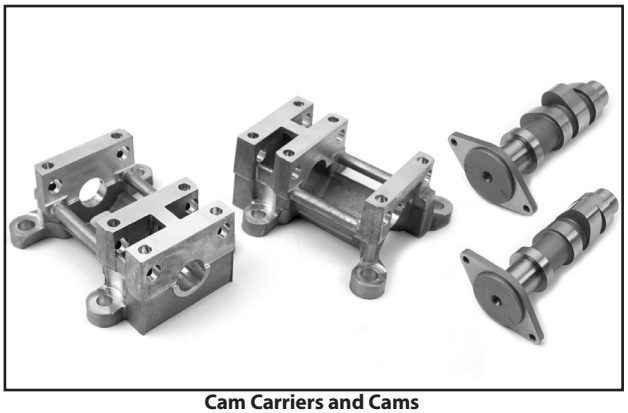
S&S recommends you take special notice of these items.

WARRANTY:
All S&S parts are guaranteed to the original purchaser to be free of manufacturing defects in materials and workmanship for a period of twelve (12) months from the date of purchase. Merchandise that fails to conform to these conditions will be repaired or replaced at S&S's option if the parts are returned to us by the purchaser within the 12 month warranty period or within 10 days thereafter.
In the event warranty service is required, the original purchaser must call or write S&S immediately with the problem. Some problems can be rectified by a telephone call and need no further course of action.
A part that is suspect of being defective must not be replaced by a Dealer without prior authorization from S&S. If it is deemed necessary for S&S to make an evaluation to determine whether the part was defective, a return authorization number must be obtained from S&S. The parts must be packaged properly so as to not cause further damage and be returned prepaid to S&S with a copy of the original invoice of purchase and a detailed letter outlining the nature of the problem, how the part was used and the circumstances at the time of failure. If after an evaluation has been made by S&S and the part was found to be defective, repair, replacement or refund will be granted.

ADDITIONAL WARRANTY PROVISIONS:
(1) S&S shall have no obligation in the event an S&S part is modified by any other person or organization.
(2) S&S shall have no obligation if an S&S part becomes defective in whole or in part as a result of improper installation, improper maintenance, improper use, abnormal operation, or any other misuse or mistreatment of the S&S part.
(3) S&S shall not be liable for any consequential or incidental damages resulting from the failure of an S&S part, the breach of any warranties, the failure to deliver, delay in delivery, delivery in non-conforming condition, or for any other breach of contract or duty between S&S and a customer.
(4) These S&S parts are designed exclusively for use in Victory motorcycles. S&S shall have no warranty or liability obligation if an S&S part is used in any other application.

Kit Contents

- S&S® 495 front and rear cam carriers
- S&S 495 cams



Cam Carriers and Cams

When installing the S&S 106-2874 cam kit into a MY2009-Up Victory® motorcycle the following parts will need to be purchased from Polaris®.

Quantity	Polaris Part Number	Description
4	3021189	Rocker Arm Shaft
12	5132593	Stud
12	7547080	Nut
12	7556211	Washer

NOTE: *When installing S&S .495" cams, it is required that you install S&S valve spring kit PN 49-0115.*

⚠ WARNING

Be sure to disconnect the battery of your motorcycle before starting on this procedure. Accidental starting of the motorcycle could cause injury to you or others around you during the installation.

Model Year 2009 Cam and Cam Carrier Removal

1- Remove the front and rear stock cams and cam carriers from the engine that you're performing the work on by following your 2009 factory service manual.

Model Year 2009 Rocker Arm Removal

1- Remove the intake and exhaust rocker arms from the cam carriers by following your 2009 factory service manual.

NOTE: *Intake and exhaust rocker arms should be labeled or marked front and rear so they go back together on the same head they were removed from.*

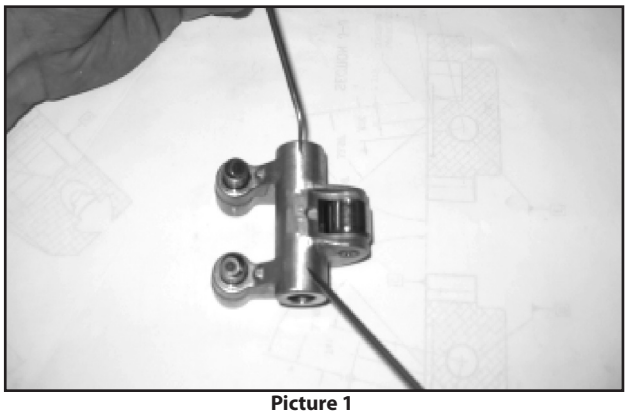
Exhaust Rocker Arm Clearance

1- Front and rear exhaust rocker arms must be clearanced on the bottom side to accommodate the S&S .495" cams. Using a die grinder, remove excess casting material on the bottom side of the rocker arms as illustrated in **Picture 1**.

2- When grinding on the rocker arms it is recommended to tape up hydraulic lifters, oil holes, bearing that rides on the cam, and each end of the rocker arm where the shaft runs through to keep debris out of these areas.

⚠ CAUTION

Failure to clearance exhaust rocker arms will result in intake lobes contacting rocker arms.



Picture 1

⚠ CAUTION

Small metal chips and pieces can damage machined surfaces and block passageways. Be sure to thoroughly clean all metal chips and pieces out to prevent premature failures.

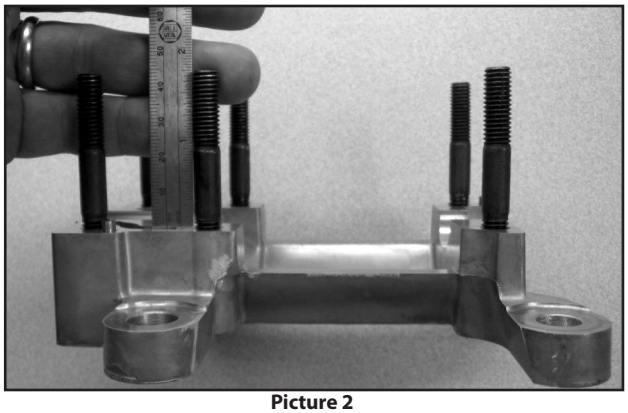
⚠ WARNING

While grinding and cleaning these surfaces always eye protection.

Stud Installation into S&S® Cam Carriers

1- Using a stud installer, install twelve Polaris® PN 5132593 – cam carrier studs into the front and rear S&S cam carriers.

NOTE: *Cam carrier studs should be installed with 1.750" sticking above machined surface as illustrated in* ***Picture 2****.*



Picture 2

Rocker Arm Installation into S&S Cam Carriers

1- Using four model year 2008 rocker arm shafts, Polaris PN 3021189 – rocker arm shaft, assemble the intake and clearanced exhaust rocker arms in the new S&S cam carriers following your 2008 Victory® service manual.

S&S .495" Cam and Cam Carrier Installation

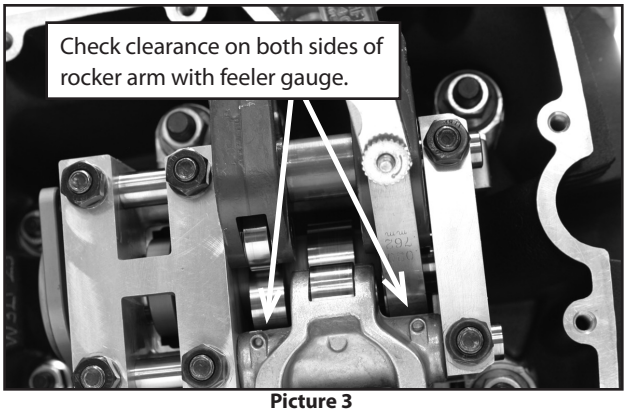
NOTE: *Once cylinder base gasket and head gasket seals are broken upon cam carrier removal, it is advised to replace base and head gaskets before cam carriers are torqued back down.*

1- Install the bottom half of the S&S cam carrier in the front and rear head and torque down following your 2008 Victory service manual.

NOTE: *S&S cam carriers are marked front and rear. Front carrier goes on front head and rear carrier goes on rear head.*

2- Clean and coat the S&S 495 cam with assembly lube and place in the lower cam carriers. S&S 495 cams are marked on each end with a F and R for Front and Rear.
3- With rocker arms installed into the top halves of the front and rear S&S cam carriers, slide the top carrier onto the studs over the S&S 495 cam.
4- Using twelve of the model year 2008 Polaris PN 7547080 – Nut and Polaris PN 7556211 – Washer, tighten down top cam carrier following your 2008 Victory service manual.

5- Once cam chains and tensioners are properly installed rotate the motor in the direction of operation to ensure intake lobes on the cams clear the exhaust rocker arms. Using a feeler gauge, verify that there is no less than .035" clearance to the tip of the intake lobe. **See Picture 3.**



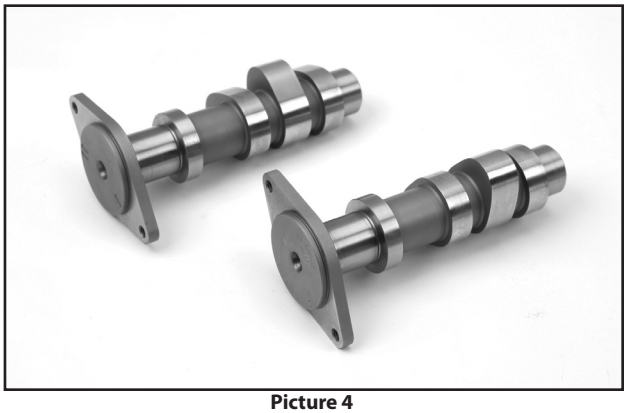
Picture 3

6- Once rocker arm clearance is achieved you can finish assembling the engine and install into the motorcycle following your service manual for the specific Victory® motorcycle you're performing the work on.

S&S® Camshaft Specifications

NOTE: *Valve timing is measured at .050" valve lift.*

S&S® Cam Specifications For .050" Valve Lift									
Cam Name	Valve Timing Open/Close		Valve Duration		Valve Lift	Centerline		Lift @ TDC	
	Intake	Exhaust	Intake	Exhaust		Intake	Exhaust	Exhaust	Intake
S&S 495	17°/47°	44°/12°	244°	236°	0.495"	105°	106.5°	.115"	.087"



Picture 4